



# SHS LEARNING ACTIVITY

CHEM1-02-05

Name: \_\_\_\_\_ Score/Mark: \_\_\_\_\_

Grade and Section: \_\_\_\_\_ Date: \_\_\_\_\_

Strand:  STEM  ABM  HUMSS  ICT (*TVL Track*)

Type of Activity :  Concept Notes  Skills: Exercise/Drill  Illustration

Laboratory Report  Essay/Task Report  Other: \_\_\_\_\_

Activity Title: 02-05.Protons in the nucleus determine the element v04

Learning Target: To explain that the number of protons in the nucleus is always the same for the same element.

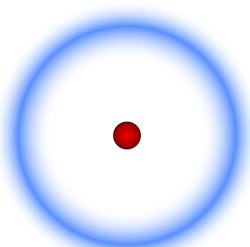
Authors/References: Victor Sojo

Chemists write elements with a one- or two-letter **symbol**. For hydrogen, this is just **H**.

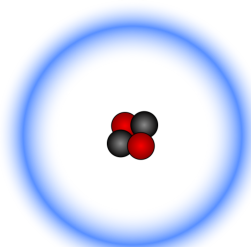
Sometimes chemists also write a little number on the **bottom-left corner** of the symbol. This is the **number of protons in the nucleus, Z**, so hydrogen would be  ${}_1\text{H}$ , because hydrogen atoms have only 1 proton.

The number of **protons** Z is **always the same** for each **element**.

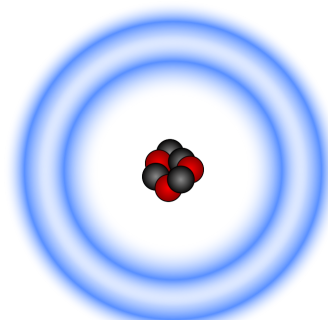
The second element is helium, with 2 protons, and then come lithium with 3, beryllium has 4, boron 5 and carbon 6. Let's make model drawings of these six atoms, including the orbitals but leaving out the electrons:



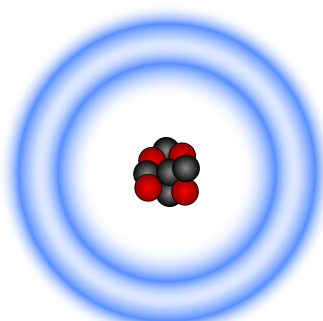
${}_1\text{H}$ : Hydrogen



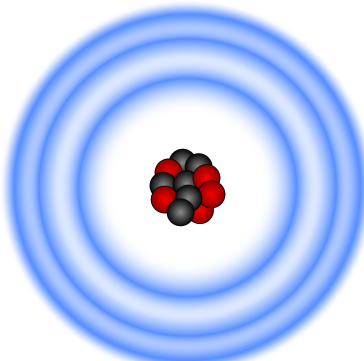
${}_2\text{He}$ : Helium



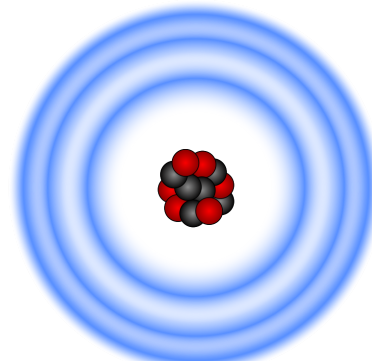
${}_3\text{Li}$ : Lithium



${}_4\text{Be}$ : Beryllium



${}_5\text{B}$ : Boron



${}_6\text{C}$ : Carbon

## Question

Look at a **periodic table** of the elements. Can you notice any pattern in the order of the elements when you compare it to the list above?

